C5175-1 A
5/23/88

Rubber World

The technical service magazine for the rubber industry

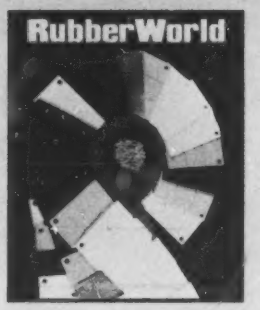
Volume 198, No. 2

May 1988

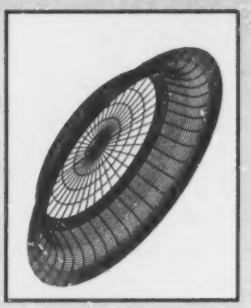
Thermoplastic and specialty elastomers

Contents

Vol. 198, No. 2 (May 1988)



Volume 198, No. 2



Processing TPEs p. 24

Fire protection p. 29

6 Business Briefs
Acquisitions, expansions; contracts, licenses; financial statements; markets, news.

12 Tech Service: Design basics - rubber in shear
by Jon Menough, contributing technical services editor. This month's column looks at applying load to rubber articles through shear.

15 Urethane Forum
This month's column focuses on a Rapra study on fire and combustibility of polymers, along with other news from the urethane industry.

17 Commercial and technical developments of liquid injection molding of silicone elastomers
by Dr. Aldo A. Laghi, General Electric Company. This article reveals how lower process costs and the high quality inherent with liquid injection molding have resulted in strong demand for liquid silicones in many industries.

20 On the transparency of elastomeric materials
by G.W. Lawless, University of Dayton Research Institute. The author discusses the unique functions of elastomers possessing visual transparency, such as in face pieces, flexible windows, protective coverings and measurement tubes.

24 How to process and prosper with TPEs
by Ray Pelle, DJ Inc. This article shares with the reader some observations on ways to use the advantages of TPEs effectively and profitably.

Unique fire protection using rubber-based materials
by Richard R. Licht, 3M Company. The use of a unique rubber compound based on chloroprene and intumescent technology is presented in this article.

34 Patent News
edited by Bob Samples, Akron Rubber Development

44 Techno Mart

Departments

4	Editorial	38	Meetings	54	Literature
36	Calendar	53	Jobs & People	56	Ad Index

Cover

Cover photo courtesy of Teknor Apex.

A Lippincott & Peto Publication

Editorial

Remember the Big Five? Nowadays it's evolved into the Big Three and we didn't have the Big Four for that long. The use of these terms was convenient for those in the media because most knew what you were referring to. But with all of the ownership changes that have taken place, the term big anything should probably be laid to rest. There is a definite changing of the guard going on and it will be interesting to watch the developments in the tire industry as it pertains to the industry as a whole. How will labor and management get along? Management and management? What will be the participation of the new ownerships in such groups as the Rubber Division of the American Chemical Society, the Rubber Manufacturers Association and even the Rubber Groups?

Many of the technological advancements in the rubber industry have been spawned in the tire segment of research. And, through participation in the aforementioned groups, technology was advanced even further. But are the Michelins, Bridgestones, Pirellis, Sumitomos, Continentals et al going to participate in the Rubber Division and the Rubber Groups in the same manner as Firestone, General, Armstrong etc.? There's a lot more to these associations than just their technological exchanges. The infrastructures are staffed by volunteers whose management allowed and encouraged such participation - participation that's desperately needed to keep these groups operating at the level we have come to take for granted. We're counting on the new members of the North American rubber industry to recognize the importance of supporting the professional associations in the same manner as their predecessors.

Hopefully, the new ownerships that inherited union shops will have the same cooperation that has developed between labor and management recently. What has been lost in the news of companies changing hands is the fact that this is a contract year for many of the tire makers. Just mentioning that a contract year was coming up would send shivers through management. Elaborate strategies would be planned in case of work stoppages, which always seemed inevitable. But that fact of life is changing as well. The URW and Uniroyal Goodrich worked out a contract two months before expiration of the old one, and Goodyear and the union reached a tentative agreement without any work disruption. This marks the fourth consecutive set of companywide negotiations between the URW and Goodyear that has been settled without a strike. Much of this accord can be attributed to the strong performances of international tire companies, who now have become domestic manufacturers. And, all of the past agreements came within the framework of a pattern settlement for the Big Five on down to this year's Big Three. This system of pattern contract negotiations is ending too.

Changes are in store for all facets of the industry. From labor relations to research and development. We're hoping the transition is a smooth one.

Don R. Smith
Editor

RubberWorld

EDITORIAL STAFF

Don R. Smith editor
Dr. Walter C. Warner technical editor
Jill Wrigley managing editor
Julie Wagner associate editor
Deanne Dodd composition editor
Jon Menough contributing technical service editor

BUSINESS STAFF

Job Lippincott publisher
John W. Peto v.p. sales
Barbara Gordon adv. production manager
Jane McBee assistant adv. production manager

EDITORIAL OFFICES

P.O. Box 5485
1867 W. Market Street
Akron, Ohio 44313
(216) 864-2122
Telex: 297690 RWMAG UR

OTHER LIPPINCOTT & PETO PUBLICATIONS

- Product News
- Automotive Polymers & Design
- Blue Book: Materials, Compounding Ingredients, and Machinery for Rubber

RUBBER WORLD, ISSN-0035-9572, May 1988 Vol. 198, No. 2.

Copyright: Lippincott & Peto, Inc. 1988; all rights reserved.

J.H. Lippincott, John W. Peto, owners. Published monthly with two special issues in February and August at 1867 West Market St., Akron, OH 44313 by Lippincott & Peto, Inc. Editorial and Executive Offices at 1867 West Market St., Akron, OH 44313. Second-Class postage paid at Akron, OH and at additional mailing offices. Postmaster: please send changes of address to RUBBER WORLD, Circulation Dept., P.O. Box 302, CromPond, NY 10517. Subscription Rates: United States, 1 year $27; Canada, $32; Foreign, $43 in U.S. currency by U.S. bank draft or international money order. Single copies $3.00. May 1988.

All rights reserved.

Business Briefs

Acquisitions, expansions

Bridgestone's purchase of **Firestone** was approved by Firestone's board of directors clearing the way for the estimated $2.6 billion takeover.

Harwick Chemical acquired the **Carter Bell Mfg. Co.** of Springfield, NJ, a manufacturer of vulcanized vegetable oils (VVO). The manufacturing of VVOs will be moved to Harwick's newly-expanded CMS Chemical division plant in Wynne, AR.

Goodyear is to build an advanced high-technology plant for the production of steel radial auto and light truck tires. The plant, to be located in Korea, is scheduled for completion in the spring of 1991 and will produce more than 3 million tires per year.

Polysar Asia Pacific opened a $2 million technical center in Singapore's Science Park.

Teknor Apex will expand operations at its custom rubber mixing facility in Brownsville, TN by 50%. The expansion is expected to be on-stream by July 1, 1988. The company's headquarters plant is located in Pawtucket, RI.

Burton Rubber Processing completed a 60,000 sq. ft. rubber mixing facility in Tillsonburg, Ontario.

Allied Color Industries' custom color facility in Greenville, SC opened a 12,000 sq. ft. building, doubling its concetrate capacity. The company's headquarters plant in Broadview Heights, OH opened a 20,000 sq. ft. warehouse and production addition, increasing the company's facility to 65,000 sq. ft. With these additions, the company expects to increase production capacity by 70%.

The **Bata Shoe Co.**, Belcamp, MD, has expanded its traditional rubber footwear manufacturing facilities into the commercial rubber compounding business for industrial parts. The expansion was called for by the company to fully utilize machinery and existing plant capacity.

JMK International, Fort Worth, TX, purchased the assets of **Porter Seal Co.** and its sister company, **Advance Rubber Molding**, Arlington, TX. The aquisition will enable the company to broaden its organic sealing base while continuing concentration on the design and fabrication of silicone sealing systems for the automotive and other industries.

Shell Chemical will modify an existing plant at its Deer Park, TX facility to purify isoprene monomer for use in the company's Kraton thermoplastic elastomers and Shellvis viscosity improvers. Field work will begin mid-1988 and will be completed in the fall of 1989, increasing plant capacity to 100 million lb./yr.

Goodyear has established a general products office in Tokyo. The office will have responsibility for original equipment automotive, technical, sales and engineering for Japan, Korea and Taiwan.

Amoco Performance Products acquired the Augusta, GA facility of **Dartco** and other assets and properties of its Xydar liquid crystal polymer business. The plant will continue as a manufacturing site for Amoco.

Ethyl Corp. will expand capacities of tetrabromobisphenol-A and methyl bromide by the third quarter of 1988. In addition, new plant construction to produce hexabromocyclododecane is expected to begin in the fourth quarter. The company is planning relocation of several of the bromine chemicals manufacturing units from Midland, MI to Magnolia, Ark.

Henkel Corp. will build a $7 million technical center at its operations facility in Ambler, PA and will relocate its New Jersey based process chemicals business to the site.

General Plastex now has the capability to rebuild full-length bi-metallic barrels.

Dayco Products will relocate its headquarters to North Charleston, SC by spring of 1989. As part of a major restructuring program, the company's research and development activities will relocate from Springfield, MO during 1991.

Parker Hannifin has agreed in principle to acquire **Stratoflex**, the Fort Worth, Texas-based manufacturer of hoses and fittings. The terms provide for the payment of $61.04 for each share of Stratoflex common stock.

N.V. Bekaert S.A. and the wire products division of the **B.H.P Steel International Group** have formed a 50/50 joint venture for the development of the production of steel cord for the reinforcement of tires in Geelong, Australia.

RMA tire report through December
(figures in thousands of units)

Passenger tires	YTD '88	YTD '87	% change
Shipments			
original equipment	4,040	4,838	-16.5
radial	3,428	4,081	-16.0
replacement	10,648	10,494	1.5
radial	9,920	9,327	6.4
export	775	369	109.9
radial	672	316	112.6
total	15,463	15,701	-1.5
radial	14,019	13,724	2.2
Production	14,386	13,940	3.2
radial	12,994	12,074	7.6
Truck & bus tires			
Shipments			
original equipment	673	643	4.6
radial	485	453	7.3
replacement	2,413	2,387	1.1
radial	1,400	1,242	12.7
export	246	121	102.6
radial	189	86	119.3
total	3,332	3,151	5.7
radial	2,075	1,781	16.5
Production	2,959	2,939	0.7
radial	1,770	1,604	10.4